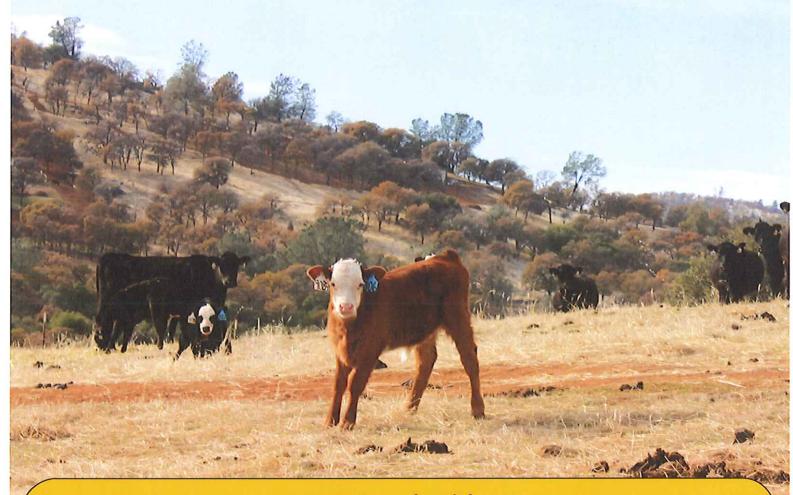
MITIGATING DROUGHT ON CALIFORNIA RANGELAND



University of California

Sierra Foothill Research and Extension Center

Jan 29th 2014

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Mitigating Drought

University of California Sierra Foothill Research and Extension Center Jan 29 2014

8279 Scott Forbes Rd. Browns Valley, CA

9:00-9:10	Welcome and introduction to the day	Jeremy James UC SFREC	
	Optimizing pasture		
9:10-9:15	General principles of drought response	Glenn Nader UCCE Yuba, Sutter, Butte County	
9:15-9:30	The last 30 years of rainfall and rangeland forage production	Larry Forero, UCCE Shasta and Trinity County	
9:30-9;45	Using and storing annual feed on rangeland and alternatives to annual feed	Josh Davy, UCCE Tehama, Colusa, Glenn County	
9:45-10:00	Optimizing irrigation and fertilization on irrigated pasture	Larry Forero, UCCE Shasta and Trinity County	
10:00-10:15	Grazing management principles during drought conditions	Roger Ingram, UCCE Nevada, Placer County	
10:15-10:30	Discussion		
2	Field talks	ti	
10:30-11:30	Animal health and making culling decisions	Dr. Nancy Martin, Veterinarian	
	Feeding and nutritional aspects of roughage supplementation	Glenn Nader UCCE Yuba, Sutter, Butte County	
11:30-12:30	Lunch		
12:30-12:45	Optimizing supplemental feed How and when to supplement and economics of supplementation	Dr. Jim Oltjen, Dept. Animal Science, UC Davis	
12:45-1:00	Alternative protein supplementation	Dr. Roberto Sainz, Dept. Animal Science, UC Davis	
1:00-1:15	Roughage supplementation, feeding corn to spare hay	Glenn Nader, UCCE Yuba, Sutter, Butte County	
1:15-1:40	Discussion		
	Risk Management and Economics		
1:40-2:00	Government/NAP, Emergency feed, Low interest loans	Justin Oldfield, California Cattlemen's Association	
2:00-2:20	Lack of Rain Fall Insurance	Matt Griffith & Jim Vann Ranch Protection ranchprotection.com	
2:20-2:40	What did ranchers learn from the 1970s drought?	Wally Roney, Rancher Tehama and Butte County	
2:40-3:00	Cow-calf Economics	Glenn Nader, UCCE Yuba, Sutter, Butte County	
		Suiter, Dutte County	



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Making a Difference for Galifornia

What's the value of dry range and what

can

Josha Davy, ale Banna Arevilso.

See the annual rangeland management series: http://anrcatalog.ucdavis.edu/

What do we have for quality? Right now, dry and leached stage

Crude protein (%)

TDN (%)

				V		
Stage of maturity	Annual grass Filaree		Bur clover	Annual grass	Filaree	Bur clover
Early vegetative	18	27	28	77	97	91
Late vegetative	15	25	27	74	94	89
Early flowering	15	22	26	72	91	86
Late flowering	10	16	22	67	84	80
Mature	6	10	19	61	72	72
Dry	5	7	18	58	69	69
Dry, leached	3	5	17	58	67	67

What does the cow need?

,	Stage of production					
Nutrient	Period 1: calving (45 days)	Period 2: breeding (45 days)	Period 3: early gestation (90 days)	Period 4: mid gestation (90 days)	Period 5: late gestation (90 days)	
Dry matter (lb)	20.60	21.00	19.50	18.10	19.60	
Protein (lb/day)	2.50	2.60	2.00	1.30	1.60	
IDN (lb)	13.80	14.00	11.50	8.80	10.50	
Calcium (g/day)	36.00	38.00	25.00	15.00	23.00	
Phosphorus (g/day)	25.00	27.00	20.00	15.00	18.00	
Vitamin A (x 1,000 IU)	37.00	38.00	36.00	25.00	31.00	

Source: National Research Council 1984.

What can we do to help manage low quality dry forage?

Increase the clover content cheaply with rose clover and possibly vetch

- Increases quality of dry feed
- Lack of green season palatability helps
- Requires little or no phosphorus
- Very low seeding rate
- Fix nitrogen during green season to increase surrounding grass quality and quantity
- Obtain some estimate of what you have and build a supplement to complement it
- · Wean calves early to lower quality demands
- Consider better grass forages when applicable
- Don't sacrifice RDM for when it does rain.
 Drylot feed cattle if necessary to preserve RDM

To simplify information, trade names of products have been used. No endorsement of named products is intended, nor is criticism implied of similar products not mentioned.

Grazing Management Principles During Drought Roger Ingram, UCCE County Director / Farm Advisor, Placer / Nevada

- 1. Never Feed Your Way Out of a Drought It will bankrupt you economically, financially, and ecologically.
- 2. Develop a Drought Plan For now, you are in crisis management. When the crisis passes and it starts raining again, sit down and develop a drought plan.
- 3. Ecological Considerations Residual dry matter provides mulch that enhances seed germination, cover to minimize soil erosion, organic matter to the soil that helps feed soil microbes, and is a source of livestock feed. You will need to plan to make sure you leave adequate residual dry matter in the fall to maintain the many benefits it provides. Your grazing strategy should be take half, leave half to ensure adequate residual and to maintain root growth. If you create increased bare ground, you risk soil erosion, water running instead of soaking in, and reduced organic matter to feed soil microbes. This will result in making desirable plant communities unhealthy or having them shift to an undesirable plant community.
- 4. Match Stocking Rate to Changes in Carrying Capacity on an Annual and Seasonal Basis Carrying capacity is the supply of forage that is dependent on the amount of rain we receive. Stocking rate is demand we place on supply and needs to flexible. The forage situation seems to point to low carrying capacity, which indicates a need to reduce numbers sooner rather than later. You must determine your critical date by which you will start to reduce numbers if you have not received rain.
- 5. **Increase the rest period** Plants need a longer recovery period during drought. If you do not allow adequate recovery, you will overgraze and increase the likelihood of more bare ground.
- 6. **Combine Herds** Combining herds will increase the number of paddocks resting and increase stock density, which will improve the uniformity of utilization.
- 7. **Get More Intensive** Animals will eat more than their nutrient requirement on the first day of the graze period. You can subdivide existing paddocks with temporary electric fence to allocate what they need to meet their nutrient requirement.
- 8. Poisonous Plants Animals will start to eat plants the normally avoid or consume more of a specific plant that can become toxic when consumed in high amounts. Contact your UCCE Farm Advisor for more information
- 9. **Develop Livestock Water** You may need to consider buying a storage tank, poly pipe to run above ground, and a solar pump. You may need to haul water. Consider long-term livestock water development for the future.
- 10. **Planning** Be sure to develop grazing plans and stock flows to help you make decisions regarding the drought. Planning and discussing options with others can help in reducing the influence of emotion on decision-making.

Optimizing Supplemental Feed

How and when to supplement and economics of supplementation

Jim Oltjen Extension Specialist Department of Animal Science UC Davis

Options during drought

Buy feed

Sell animals

Monitor water (drinking and/or irrigation)

Transport to better grazing

How to decide

Long term ranch income

Save the ranch and forage base

Save best genetics

Income tax consequences

SFREC Supplementation Research

Not supplementing is not a viable option

Must at least supplement the thinner cows

Both older and younger cows have more difficulty maintaining condition

Pregnancy rate decreases in older cows

Weaning weights decrease with age after cows are about 5 years old

Cull older cows, feed younger and thinner ones you keep

Alternative protein supplementation

Roberto D. Sainz

Animal Science Dept.

UC Davis

Presented at Mitigating Drought

University of California Sierra Foothill Research and Extension Center January 29, 2014

- 1. The normal forage year is divided into the inadequate green, adequate green and inadequate dry seasons
- 2. The breeding/calving season is set to match maximum cow + calf nutritional requirements to maximum pasture availability
- 3. Residual dry matter standards aim to preserve the recovery capacity of rangeland forages
- 4. This year is abnormal may bypass both green seasons!
- 5. Number one drought management strategy is to destock YOU CANNOT FEED YOUR WAY OUT OF A DROUGHT (without going broke).
- 6. Dry range and straws (e.g., rice, wheat) supply fiber (for energy) but lack protein and some minerals.
- 7. Alternative supplements containing non-protein nitrogen (urea) and minerals can supply the missing nutrients in a cost-effective manner, IF THERE IS SUFFICIENT LOW-QUALITY FEED.

Use of Alternative feedstuffs in Your Beef Operation

Glenn Nader, UCCE Farm Advisor – Yuba/Sutter/Butte Counties ganader@ucanr.edu

Concentrated Energy Sources

Average Values (%)	<u>Dry</u>	<u>Crude</u>	<u>TDN</u>	Crude	<u>Ash</u>
	<u>Matter</u>	<u>Protein</u>		Fiber	
Rice Bran	91	14	76	12	14.8
Almond hulls	91	4.2	54	17	6.6
Canola meal	88	36	63	10.6	6.3
Walnut meal	93	17.1	67	27	4.9
Safflower meal	92	23.9	55	34	4.3
Pinto beans	90	25.2	83	4.5	4.8

Source –By-Products and Unusual Feedstuffs in Livestock Rations. Western Regional Extension Publication No. 39, October 1980. 22 pages

Roughages

During droughts or when dry matter is limited, rice straw and corn stover (baled corn stocks) have been used as low quality forage. It is recommended that before purchasing either of these products that a laboratory analysis should be conducted for crude protein and Acid Detergent Fiber (ADF). This allows the producer to select a product of the higher nutrient value that will decrease supplement costs to meet cattle needs.

	Crude Protein	ADF	Ash
Corn Stover	5.9	46	5.8
Rice Straw	4.5	48	16.6
Wheat Straw	3.6	52	7.2
Lima Bean Straw	7.6	39	9.3
Kidney Bean Straw	9.9	43	10.4

Source - By-Products and Unusual Feedstuffs in Livestock Rations Western Regional Extension Publication, No. 39

Rice Straw

A survey of over 70 harvested rice straw stacks found that they vary greatly in protein (2-7%) and ADF (44 to 55%). Forage value criteria for rice straw for beef cattle is suggested to be: Crude Protein of 4.5%, or higher, ADF of 50 % or lower and Moisture of 12% or lower.

Corn Stover or Baled Corn Stocks

An Oregon State study on corn stover is reported below and illustrates the variability of that product.

Corn Stover Analysis Results

	_DM	CP	TDN	NO3-N
1	85.8	3.7	53.4	
2	82.1	4.5	52.5	1270
3	84.6	5.1	54.3	1560
4	77.8	5.2	49.8	750
5	84.8	3.9	55.2	705
Average	83.02	4.48	53.04	1071

all results are reported on a Dry Matter basis

Feeding of corn stover is best utilized by placing bales in feeders. Nitrates can be a problem in corn stover, especially if non protein nitrogen supplements are being fed. Analysis for nitrates may also allow for prudent management of feed for the safety of the cattle.